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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,139	08/18/2005	Eberhard Harms	FRG-16153	2263
40854 7590 01/07/2008 RANKIN, HILL & CLARK LLP 38210 Glenn Avenue WILLOUGHBY, OH 44094-7808				
			EXAMINER ANDERSON, DENISE R	
			ART UNIT 1797	PAPER NUMBER
			MAIL DATE 01/07/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/539,139

Applicant(s)

HARMS ET AL.

Examiner

Denise R. Anderson

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 7-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 7-15 is/are rejected.
- 7) ☒ Claim(s) 1 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>16 June 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1 and 10 are objected to because of the following informalities:

Claim 1 – At line 17, the word “lest” should read “least.”

Claim 10 -- At lines 2-3, it is unclear what is meant by the phrase “for the purpose of preventing sediments from the filter liquid.” In the patentability analysis below, the examiner assumes the phrase is deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3-4, 7-12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grigo et al. (Canadian Patent No. CA 2421115A1, Jan. 11, 2001 – the English version of EP1149619A1 that is in German), in view of Degremont (FR 2,799,391 – including Bibliographic Data from the EPO, Apr. 13, 2001) that discloses stationary gas installations to clean rotary filters, and further in view of Breton et al. (US Patent No. 3,997,447, Dec. 14, 1976) that teaches the details of such gas installations in the context of rotary filters.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grigo et al., in view of Degremont.

7. Grigo et al. is analogous art since the invention is the same machine except that the paddle, used to agitate the waste water and clean the filter elements, is replaced with a gas installation to do the same task. Degremont is analogous art since a rotary filter is used to treat waste water and provide clean drinking water. Degremont, Figure 1; Bibliographic Data, Abstract, lines 1-5. The Degremont apparatus rotates the disk filters on a horizontal shaft and provides a "gas delivery system (5) . . . under the disks, to give a gas scouring action on the filter membranes." Degremont, Figure 1;

Bibliographic Data, Abstract, lines 11-13. Breton et al. is analogous art in that a rotary filter device is "used for dispensing or sparging liquids and gases into a body of fluid medium" and, thus, provides the details of the gas installation recited in the claims.

8. Independent claims 1, 13, and 15 appear below in italics, with the prior art and examiner's comments in normal font. Analysis of the dependant claims 3-4, 7-12, and 14 follows.

Claim 1. (Previously Presented) A filter device (1) (Grigo et al., Abstract, lines 1-3; Figure 1, filter device 1) for the separation of undissolved solid substances from liquids, in particular in the fields of waste water purification and water treatment, with several filter elements (6) (Grigo et al., Abstract, lines 4-8; Figure 1, filter elements 4) , for the introduction into a container (2) (Grigo et al., Abstract lines 13-18; Page 6, lines 16-17; Figure 1, container 2 or vessel 2) containing the unpurified liquid, wherein through the individual filter elements (6) a filtrate is capable of being drained away (Grigo et al., Page 6, lines 21-22 and Page 7, lines 13-15), the filter elements are arranged so as to be capable of rotating around a horizontal axis (Grigo et al., Page 6 lines 14-16; Figure 1), and the filter elements (6) are designed and arranged in such a manner, that they form a hollow space (4) (Grigo et al., Abstract, lines 13-18; Figure 1, hollow area 14) in the center, and wherein the filter device (1) comprises a gassing installation (8) (Degremont, Figure 1, gas delivery system 5 stationarily arranged such that a gas and liquid mixture flows at the filter elements and renders solids adhesion more difficult, i.e. gives "a gas scouring action on the filter membranes;

Bibliographic Data, Abstract, lines 11-13), *which is stationarily arranged in the hollow space (4) and which for the formation of a mixture of gas and liquid is capable of being impinged with compressed gas and which is arranged in such a manner, that in the liquid a flow of a mixture of gas and liquid is capable of being produced at the filter elements (6), which renders an adhesion of solid substances to the filter elements (6) more difficult, and the filter elements (6) are arranged to be rotatable around the gassing installation (8), wherein the gassing installation (8) comprises either at least one elongated hollow body (10) arranged parallel to a hollow shaft (9) (Degremont, Figure 1, gas delivery system 5 is arranged parallel to a rotating horizontal shaft 3; Bibliographic Data, Abstract, lines 7-13), which is closed at the ends on both sides (Breton et al., Column 3, lines 19-24 and 29-32; Figures 1 and 6 and Column 14, line 58 through Column 15, line 5; Figure 6, hub 35 which is applicant's hollow shaft), or comprises at least one elongated hollow body (10) (Breton et al., Figure 6, reference part 42 that is arranged horizontally and orthogonally to hollow shaft 35) arranged horizontally as well as orthogonally to a hollow shaft (9), and the at least one hollow body (10) is connected with a chamber (12) (Breton et al., Figure 6, center of hollow shaft 35) of the hollow shaft (9) through connecting pieces (11) (Breton et al., Figure 6, reference part 37), wherein the chamber (12) is connected with a compressed gas generator (14) (Breton et al., Column 14, lines 58-63; Figures 1 through 6 and Column 14, line 68 through Column 15, line 4 where "air was forced, at a rate of 5 liters per minute, in though . . . hub 35 and out though . . .*

distribution layer 40 and surface layer 41" – indicating the presence of a compressed gas generator).

Grigo et al. discloses the claimed invention except that the paddle used to agitate the waste water and clean the filter elements is replaced with a gas installation to do the same task. Grigo et al., Figure 1. Degremont teaches that it is known in the waste water treatment art to construct a rotary filter with disk filters rotating on a horizontal shaft and to provide a "gas delivery system (5) . . . under the disks, to give a gas scouring action on the filter membranes."

Degremont, Figure 1; Bibliographic Data, Abstract, 1-5 and lines 11-13. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have replaced the Grigo et al. paddle with a gas installation as taught by Degremont, since Degremont states in the Abstract, lines 11-13, that such a modification would "give a gas scouring action on the filter membranes."

Grigo et al., in view of Degremont, discloses the claimed invention except that the Degremont gas installation is located underneath the rotating filter elements and applicant's gas installation is located in the center of the rotating filter elements. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have located the gas installation in the center of the rotating filter elements in the Grigo et al. filter apparatus, instead of underneath, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Grigo et al., in view of Degremont, discloses the claimed invention except for the details of the of the gas installation recited in the claims. Breton et al. discloses these as shown above in the element-by-element matching between the claim limitations and the prior art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporated the gas installation details into the Grigo et al. filter device, as taught by Breton et al., since Breton et al. states at Column 14, lines 58-59 that such modifications would contribute to "superior sparging ability of the device."

In summary, claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grigo et al., in view of Degremont that discloses stationary gas installations to clean rotary filters, and further in view of Breton et al. that teaches the details of such gas installations in the context of rotary filters.

Claim 13. (New) A filter device for the separation of undissolved solid substances from liquids, in particular in the fields of waste water purification and water treatment, with several filter elements, for the introduction into a container containing the unpurified liquid, wherein through the individual filter elements a filtrate is capable of being drained away, the filter elements are arranged so as to be capable of rotating around a horizontal axis, and the filter elements are designed and arranged in such a manner, that they form a hollow space in the center, and wherein the filter device comprises a gassing installation, which is stationarily arranged in the hollow space and which for the formation of a mixture

of gas and liquid is capable of being impinged with compressed gas and which is arranged in such a manner, that in the liquid a flow of a mixture of gas and liquid is capable of being produced at the filter elements, such that this flow renders an adhesion of solid substances to the filter elements more difficult, and in that the filter elements are arranged to be rotatable around the gassing installation.

Claim 13 is claim 1 without the details of the gassing installation recited by applicant and taught by Breton et al.. Therefore, the claim 13 patentability analysis is the same as claim 1 except for use of the Breton et al. reference and that patentability analysis will not be repeated here.

In summary, claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grigo et al., in view of Degremont.

Claim 15. (New) A filter device for the separation of undissolved solid substances from liquids, in particular in the fields of waste water purification and water treatment, with several filter elements, for the introduction into a container containing the unpurified liquid, wherein through the individual filter elements a filtrate is capable of being drained away, the filter elements are arranged so as to be capable of rotating around a horizontal axis, and the filter elements are designed and arranged in such a manner, that they form a hollow space in the center, and wherein the filter device comprises a gassing installation, which is stationarily arranged in the hollow space and which for the formation of a mixture of gas and liquid is capable of being impinged with compressed gas and which is

arranged in such a manner, that in the liquid a flow of a mixture of gas and liquid is capable of being produced at the filter elements, which renders an adhesion of solid substances to the filter elements more difficult, and the filter elements are arranged to be rotatable around the gassing installation, wherein the gassing installation comprises a hollow shaft with gas outlet openings and is connected to a compressed gas generator, the filter elements being arranged to be rotatable around the hollow shaft.

Claim 15 is claim 1 with the structure of the gas installation being recited as a hollow shaft with gas outlet openings. The relevant claim 1 patentability analysis will not be repeated here. The remaining limitation will be treated in the following paragraph.

Grigo et al., in view of Degremont, teaches the claimed invention except for the structure of the gas installation being a hollow shaft with gas outlet openings. In Example 5, Breton et al. discloses such a gas installation. Breton et al., Figures 1 and 6 and Column 14, line 58 through Column 15, line 4.

In summary, claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grigo et al., in view of Degremont that discloses stationary gas installations to clean rotary filters, and further in view of Breton et al. that teaches the details of such gas installations in the context of rotary filters.

Analysis of dependant claims 3-4, 7-12, and 14.

Claim 3. (Previously Presented) The filter device according to claim 1, wherein the hollow space (4) is connected with the container (2) through apertures (5).

Claim 4. (Previously Presented) The filter device according to claim 1, wherein the hollow space (4) is closed relative to the container (2).

All claim 1 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al.. Grigo et al. further teaches both connecting the hollow space with the container through apertures (Figure 3 and Page 7, lines 8-13) and not connecting the hollow space with the container through apertures (Figure 4 and Page 7, lines 15-18).

In summary, Grigo et al., in view of Degremont, and further in view of Breton et al. discloses or suggests all limitations in claims 3 and 4.

Claim 7. (Previously Presented) The filter device according to claim 1, wherein the filter elements (6) are rotatably supported by bearings (21, 22) on the hollow shaft (9) connected with the gassing installation (8).

All claim 1 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al.. Grigo et al. also discloses filter elements that are rotatably supported by bearings. Grigo et al., Figure 1, bearings 11 and 13; Page 6A, lines 19-23. In Figures 1 and 6, Breton et al. further teaches a hollow shaft 35 connected with the gassing installation (Column 14, lines 58-59 and Column 14, line 63 through Column 15, line 4) that is rotatably supported by a bearing (Figure 1, bearing 3). It would have been

obvious to one having ordinary skill in the art at the time the invention was made to have incorporated the hollow shaft with the gassing installation into the Grigo et al. filter device supported on bearings, as taught by Breton et al. since Breton et al. states at Column 14, lines 58-59 that such modifications would contribute to the "superior sparging ability of the device."

Claim 8. (Previously Presented) The filter device according to claim 1, wherein the hollow shaft (9) comprises a second chamber (26), which is connected with a vacuum pump (33) for draining away the filtrate.

All claim 1 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al.. Grigo et al. further discloses a second chamber in the hollow shaft connected to a vacuum pump for draining away the filtrate. Grigo et al., Figures 1-4, connecting duct 19; Page 6a, line 35 through Page 7 line 1.

Claim 9. (Previously Presented) The filter device according to claim 8, wherein the chamber (26) for the draining away of the filtrate is provided with channels (27), which extend radially to the chamber (26) through the hollow shaft (9) and through a sliding ring (28) arranged as rotatable on the hollow shaft (9), which is connected with piping conduits (29), which are connected with the filter elements (6).

All claim 1 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al.. Grigo et al. further discloses all claim 9 limitations except that the piping conduits (Figure 1, reference part 18) come together before entering the sliding ring (Figure 1, reference part 20) instead of coming together at the sliding ring as recited by applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have located the piping conduits at the sliding ring, as opposed to before the sliding ring, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Claim 10. (Previously Presented) The filter device according to claim 1, wherein the at least one hollow body (10) of the gassing installation (8), for the purpose of preventing sediments from the filter liquid, is provided with open socket pieces (34) directed downwards.

All claim 1 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al.. Claim 1 is further limited by a reciting a downward directed jet of gas to remove sediments since applicant's gas installation sits in the middle of rotating filter elements and sediments need to be removed underneath. In Figure 1, the Degremont filter device shows an upward directed jet of gas to remove sediments since the Degremont gas installation sits underneath the rotating filter elements. A combination of familiar prior art elements (recited open socket piece or the Degremont equivalent) according to

known methods (used to produce a jet of gas) is likely to be obvious when it does no more than yield predictable results (sediments are removed).

In summary, all claim 10 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al..

Claim 11. (Previously Presented) The filter device according to claim 1, wherein in the upper zone of the apertures (5) semicircular spoilers are attached, in order to increase the effect of the flow of compressed air on the filter liquid.

All claim 1 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al.. Claim 1 is further limited by a reciting semicircular spoilers which close off the apertures and force more of the gas past the filter elements. In Figure 1, the Degremont filter device shows the filter elements tilted off the horizontal which would serve as a spoiler and force more of gas past the filter elements. A combination of familiar prior art elements (a spoiler) according to know methods (used to redirect gas flow over the filter elements) is likely to be obvious when it does no more than yield predictable results (the filter elements are better cleaned).

In summary, all claim 11 limitations are discloses or suggested by Grigo et al., in view of Degremont, in further view of Breton et al..

Claim 12. (Previously Presented) The filter device according to claim 1, wherein the at least one hollow body (10), in preference, is designed as pipe-shaped and

in order to allow the compressed gas to escape is comprised of a porous material or else is provided with holes (15).

All claim 1 limitations are disclosed or suggested by Grigo et al., in view of Degremont, in further view of Breton et al. In Figure 1, reference part 5, Degremont further teaches a pipe-shaped hollow body with holes to allow compress gas to escape. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the Grigo et al. filter device with a gas installation that comprised a pipe-shaped hollow body with holes to allow compress gas to escape, as taught by Degremont, since Degremont states in the Abstract, lines 11-13, that such a modification would "give a gas scouring action on the filter membranes."

Claim 14. (New) The filter device of claim 13, wherein the gassing installation comprises at least one elongated hollow body that is either porous or provided with holes and that is connected through a hollow shaft to a compressed gas generator.

Grigo et al., in view of Degremont, discloses the claimed invention except for the details of the of the gas installation recited in the claim. Degremont discloses an elongated hollow body with holes connected through a hollow shaft to a compressed gas generator. Degremont, Figure 1, gas delivery system 5; Bibliographic Data, Abstract, lines 11-13. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have

provided the Grigo et al. filter device with a gassing installation that comprised a hollow body with holes connected through a hollow shaft to a compressed gas generator, as taught by Degremont, since Degremont states in the Abstract, lines 11-13, that such a modification would "give a gas scouring action on the filter membranes."

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise R. Anderson whose telephone number is 571-270-3166. The examiner can normally be reached on Monday through Thursday, from 8:00 am to 6:00 pm.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number:
10/539,139
Art Unit: 1797

Page 16

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